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Abstract: This paper examines some continuities and ruptures in the use of Web 2.0 such as blogs, social media, user-generated content services etc. *vis-à-vis* earlier web services. We hypothesize that one of the sociological characteristics of Web 2.0 services is that making personal production public creates a new articulation between individualism and solidarity, which reveals the strength of weak cooperation. Web 2.0 services allow individual contributors to experience cooperation *ex post*. The strength of the weak cooperation arises from the fact that it is not necessary for individuals to have an *ex ante* cooperative action plan or altruistic intention. They discover cooperative opportunities only by making public their individual production. The paper illustrates this phenomenon by analysing the uses of different services and by looking at the new process of innovation that appears through Barcamp and Coworking spaces.
Key words: Web 2.0, weak cooperation, BarCamp.

Echoing the euphoric 2000 internet bubble, the Web 2.0 label is now so widespread that it is increasingly difficult to define the boundaries and characteristics of the services it covers. Indeed, the success of Web 2.0 affirms that we are reaching a major turning point in the use of relational internet. However, it is necessary to define the specificities of the relational character of these services and their original innovation frame. This paper looks at some continuities and ruptures in the practices of those services that are the most characteristic of Web 2.0 (blogs, social media, user-generated content services etc.). We conclude that one the sociological characteristics of these services is that making personal production public creates a new articulation between individualism and solidarity, which reveals the strength of weak cooperation.

Web development always contains the community ideal. But the community - whatever it is before or through the digital exchanges between individuals - is usually considered as both voluntary and organised cooperation (RHEINGOLD, 1994). In both cases, the cooperation between individuals can be qualified as strong: Common sociability and a set of roles

and defined exchange modalities gives individuals the feeling that they are part of the community and share a common vision. However, the success of Web 2.0 services shows that its users mobilise much weaker cooperation between individuals. Web 2.0 services allow individual contributors to experience cooperation *ex post*. The strength of the weak cooperation comes from the fact that it is not necessary for individuals to have an *ex ante* cooperative action plan or altruist preoccupation. They discover cooperative opportunities only by making their individual production public, i.e. texts, photos, videos etc. This paper tries to propose some sociological interpretation of this characteristic of Web 2.0 based on selected examples. More generally, it tries to propose a broader interpretation of the cooperative individualism paradigm (FLICHY, 2004).

■ Public space as an opportunity for cooperation

The rise of Web 2.0 practices seems to contradict many forecasts regarding the form of cooperation and community that were promoted at the beginning of internet practices. Academic debates on internet uses have shaped two very opposite representations of the internet user. The first has been conceived as a utilitarian agent mainly concerned with maximising its own personal interest (searching information, buying and selling for a better price, promoting its competencies and gaining reputation). The second has been defined as an altruist individual motivated by collective action, volunteering, community belonging, public interest and knowledge sharing. This tension between these two conceptions of the web user, often reinforced by academic differences between economists and sociologists, lies at the core of debates about the motivation of free software developers, e-commerce or p2p file sharing. As already shown on many occasions (BENKLER, 2006), those two conceptions of users' goals overemphasise users' motivations as an explicit and clear plan of action. In practice, their goals appear to be less-defined, more flexible and pragmatic, and they change when the user's involvement in internet practices is more important, regular and active. Moreover, neither commercial web services nor strong communities of peers linked by a common normative or political goal have developed massively on the internet. In a certain way, they have been overtaken by Web 2.0 practices, which appear to lie somewhere in-between utilitarian and altruist behaviours. The success of Web 2.0 services reveals the user's hybrid motivation where the individualization of the user's goals meets the opportunity of sharing personal expression in a public sphere.

Individualism and relation making

Involvement modalities in Web 2.0 practices appear to be more personal and individualistic than has been suggested by promoters of the World Wide Web, who often emphasize the social community of digital worlds (FLICHY, 2001). Users of social media services have very individualistic motivations and goals when they begin their internet practice: bloggers want to publish their own production, Flickr or YouTube users want to store their pictures or videos, Wikipedians begin to write an article about their personal concern etc. The idea of horizontal cooperation between participants is not part of the plan of action for users. Sociological explanations of the rise of digital self-production must be found in the dynamic of individualization in contemporary societies: the increase of cultural capital, the desire for uniqueness and visibility, the experimentation with new forms of identity-building and the search for reputation and notoriety (ALLARD & VANDENBERGHE, 2003). The blurring of the frontier between user and producer is directly linked to individual transformation characterized by the desire for expression and the search for autonomy. Publishing personal thoughts, pictures, comments on public events, cultural taste etc., appears to be a new form of identity-building in individualist societies.

However, many commentators have shown that this process of personalization is highly relational. People build their identity through the continuous search for recognition in the eyes of others. That is the reason why contemporary forms of the process of individualisation in our society cannot be understood as solitary and egoistic self-isolation, but as a way of building the composite role of one's own personality in relation to others, corresponding to different social roles (SINGLY, 2003). This relational experimentation of identity-role is based on the exchange of individual productions expressing various aspects of the individual's qualities, competencies or activities. Most of the time, however, these individual productions are intimately mixed with cultural products: personal feelings about a song, consumption habits, parodies of commercial movies or ads, sampling music, writing text and comment in the style of etc.. Self-production will not develop if people do not have models produced by cultural industries to copy, parody, sample and compare. In his research Michel GENSOLLEN (2003, 2006) has underlined that virtual communities have a blackboard structure when they are organized to share experience between consumers (like Amazon). People don't interact with each other, but publish information on their experience of the "product". In this context participants can only develop an instrumental intimacy between them. They are linked by very weak ties and only for a specific purpose. We can hypothesize that the rise

of Web 2.0 practices appears as a transformation of blackboard communities into relational communities where people enjoy electronic interaction through comments and discussions of their own production. Even if we consider those transformations as a continuous process rather than a break, the most dynamic example of Web 2.0 services are based on personal relations between individuals. What seems to be new here is the fact that even though the link between individuals is still weak, the density of exchanges and the number of connexions is greater than what was expected in previous forecasts.

Studies of blog users have shown these characteristics (NARDI *et al*., 2004). The rise of the blogosphere must be seen as a new articulation between individual and collective ways of building identities in contemporary societies where expression of the self appears as a way of forging relations. Blogs are both publication and communication tools. Bloggers produce specific content in order to reach others and to start a conversation with them. Recent researches have shown that when a blog has no comment, the blogger often stops producing new content on a regular basis (MISHNE & GLANCE, 2006). The life of a blog is strongly related to the number and the density of comments that bloggers attract through their posts: blogs which publish regularly have four times more links with other blogs than the rest (LENTO *et al*., 2006). Bloggers need to interact with their audience to encourage them. They also need to develop different strategies in order to convince other bloggers to comment on their blog. Bloggers' personal identities are built on the basis of the multiple interactions they have set up with their commentators.

The way people blog also has a significant effect on the shape of the relational networks of their commentators. We suggest a methodology to detect four types of relational networks in the blogosphere: the size of the network, connectivity between commentators and the presence of known or unknown contacts (CARDON & DELAUNAY, 2006). In intimate blogs, which have a star-like network structure, people don't know each other in real life and the anonymity of exchanges is often a central condition of the quality of blog conversations. By contrast, in proximity blogs - with a very dense small cluster of blogroll networks - bloggers have daily and multiple exchanges because they have previously developed close links in real life. In the thematic blogs of some communities of practice, people enlarge their social networks by using blogs to discover new people that have the same skills or tastes. They mix in their network of contacts people they already know and people they will encounter. In blogs concerned with information and politics, bloggers gather in clusters of similar points of views, but always comment on

others. Even if participants discuss with people that they did not know before, citizens' conversations on blogs are also tools for mobilisation and encounters in real life.

This relational life is at the centre of most of the new user-generated services like MySpace, Flickr or Bebo (BOYD & HEER, 2006). They appear to generate some forms of coordination that are slightly different from mediated communities organized to evaluate, share and sell products of cultural industries (p2p, Amazon, etc.). The blackboard model of mediated community seems to be more efficient when goods are not directly produced by users, but only shared and commented on by users. With the dynamic of self-production, inter-individual relations between users are dense, active, frequent and very horizontal. When content is produced by users themselves, sometimes mixing mass culture product with their own production, they develop interpersonal relations in which their identities are expressed through their production. In a certain way, Web 2.0 services can be characterized by the astonishing rise of public interpersonal relations in mediated communities, the extension of the number of contacts and the growth of a new form of weak friendship.

Publication as an opportunity for cooperation

In this context, publishing individual activities is the first step toward a potential coordination with others. Making personal expression public gives the opportunity to organize collective activities. In most cases, however, the potential for cooperative activities appears *ex post* to individuals. Many bloggers that we interviewed during our surveys did not realize, when they were beginning to publish on their blog, that they will spend more time replying to comments than editing their own posts (CARDON & DELAUNAY, 2006). BRYANT *et al*. (2005) studied nine "Wikipedians" showing how their roles changed when they became more active. At the beginning they were mainly concerned with writing personal papers. However, as they became more involved in Wikipedia practices, they adopted new goals. They became more concerned with the quality of Wikipedia content as a whole, taking on more "administrative" roles in the site. One such role is that of watchdog, where users monitor community activities and look for opportunities to help and correct mistakes (LEVREL, 2006). This transformation of users' goals, from individual interest to collective concern, can also be observed on other relational sites where people share user-generated content such as Flickr or YouTube.

As has already been shown for the p2p community, the organisation of exchanges doesn't require the strong involvement of the whole community, but a cluster of very active participants can lead the community in producing a lot of external effects. In massive communities, the diversity of involvements and goals of users can easily be overcome. Flickr is a good illustration of the fact that collective activities result from the opportunities created by personal publication. In a statistical study based on an extraction of all Flickr accounts, we have shown that only 19% of Flickr users use the cooperative functionality of Flickr service to monitor different contacts, to bring their photos in thematic groups and to tag photos [1]. Thus, this small minority of users is sufficient to create a massive and organized repertory of thematic pictures. Many different uses of Flickr can be observed by this way. Some use it only to store their own pictures, others to create communities of practices, and others to meet new friends as in MySpace. Yet it appears that the dynamic of this relational community depends on users' accepting to publicize at least a part of their personal production. Even if everyone is not involved in cooperative activities, in massive relational services the collective effects of cooperation can only be accomplished if there is a lot of individual participation.

The building of collective forms

Self-organization appears as the major form of collective organization in Web 2.0 relational structures. This form of cooperation doesn't correspond to a planned model of collective processes and has no real centre of organization. Even if we could study the large variety of organizational forms (from Wikipedia to free software communities), one of the main characteristics of all theses services is the fact that the rules and norms are produced by users themselves. When users have to obey constraints proposed by services providers, they often suggest or criticize formal rules and try to influence providers in order to adopt better rules for the community. For example, BOYD (2004) has described the mobilization of Friendster users against the provider when the company tried to stop the rise of "Fraudster" used by participants to extend the number of their relationships by creating fictional identities - such as Georges Bush or Mel Gibson (BOYD, 2004). In most mediated communities of Web 2.0 services,

[1] This study was conducted with Jean-Samuel Beuscart, Nicolas Pissard, Pascal Pons and Christophe Prieur in our laboratory in France Telecom R&D. The complete results of this research will be published in 2007.

such as the monitoring of papers in Wikipedia, collective rules are self-organized on the basis of user contributions. The rise of tagging practices can be seen as the best illustration of this tendency. Instead of a well-defined, vertical and centralized classification, users develop personal tags as a new way of organizing information, which is a compromise between personal filing and collective production of taxonomy (MARLOW *et al*., 2006). This new form of weak cooperation based on individual contributions has been described by BENKLER (2005) as a new context of innovation in the digital economy; this cooperation is possible in a specific context where it is possible to attract a very large number of participants, allowing them to make very small contributions with a granularity effect.

■ A new context for innovation: BarCamp and coworking space

Above we tried to briefly characterize changes and continuities in relational communities of Web 2.0 services, underlining the strength of weak ties. However, we need to apply these characteristics to more general transformations in the ICT economy of innovation in the Web 2.0 period. We will show that there is a strong analogy between the relational links among users and the way innovation appears and is developed. A new innovation model is taking place in a very specific eco-system, which is a strange mix of entrepreneurs and social movements. In this eco-system, individuals meet and cooperate with the same kind of characteristics as seen in the relation between users, based on weak cooperation which is built *ex post*, through sharing and proposals. This new innovation model arises from the specificities of Web 2.0, but can also be explained by the preoccupations of the individuals. Most of the Web 2.0 applications were built by people looking for some "cool" tool or service which, in the first place, would be useful to them. There is a strong relation between the way these tools were imagined and built and the way in which other users appropriated the applications for themselves (a strong relation which is not a strict correlation; in Web 2.0, as in many IT services, users divert and twist the service, as we saw with Flickr where people had made their photos public to a far greater extent than expected).

Historically, innovation in IT was the domain of companies with two specificities: firstly, a permanent co-innovation and co-invention process requiring a chain of individuals to transform generic IT core tools into user-

friendly applications (BRESNAHAM, 2002); and secondly a low access cost due to the digitalisation of information, which allowed small players, start-ups and even individual developers to enter the sector. Those two specificities explain why unpredictable players, such as free software developers, were able to enter the IT industry. In the mid 1990s, two innovation models were evident: a company model, with the characteristic of giving space to small players occupying some technological niches or, from time to time, jumping ahead with a differentiating technology such as Google's ranking algorithms; and a free-software model based on massive, but remote cooperation through tools such as software Forges.

Web 2.0 is an interesting case in point, with the appearance of new spaces for cooperation that differ from both the company model and the remote cooperation of the free software community. Before Web 2.0, IT companies mixed vertical cooperation, for example the historical relation between Microsoft and Intel, with hard competition and tough control over the technical development processes. In the second part of the1990s, during the web and internet bubble, start-ups still followed this model. The Web 2.0 innovation model is very different because it introduces horizontal cooperation between players.

To illustrate this shift in the innovation process, we will look at two different spaces for cooperation characteristic of the Web 2.0 world: the BarCamp and the Coworking places. As for the relations among users of Web 2.0 services, these spaces are based on weaker cooperation than the company projects, but nonetheless require live contacts and greater commitment than in the free software model. This kind of cooperation is related to the specificities of contemporary relational individualism (SINGLY, 2003), but also arise from the particular characteristics of Web 2.0.

The first characteristic is the fact than Web 2.0 applications lie somewhere between the closed model of patented software and the open model of free software. Few Web 2.0 services are based entirely on free software, but all of them have open API (Applications Protocol Interfaces), which allow much better "cooperation" between services than simple software interoperability. "Mashup" (a web application that combines content from different sources) is the symbol of Web 2.0, where each service grows rich from the content given by other services. Even if Web 2.0 services designers only know *ex post* if opening the API will help to increase audience, knowing the ecosystem in which the service could be used and making it easy for other players to build mashup is also useful.

The second characteristic is a new link between the free-software culture and services users. While the majority of Web 2.0 applications are not totally free, they are based on free-software bricks and their designers are immersed in the free-software culture. Previously, free-software developers focused on low-layer software such as Apache, the popular web server, or on operating systems such as Linux, leaving the everyday applications to the corporations (even Open Office was developed mainly by Sun and IBM engineers). The Web 2.0 wave marks an important shift with immediate consequences: developers cannot remain a closed community with an esoteric language and practises for initiates; they are now building high-layer software applications used directly by the public and for that they need designers, graphic designers and even marketers, economists, sociologists, etc.

BarCamp is a tremendous illustration of the effect of horizontal and weak cooperation in the process of innovation. The first BarCamp was held in Palo Alto (near San Francisco) in August 2005 as a spin-off and response to FooCamp, an annual invitation-only conference hosted by Tim O'Reilly, the well known open source publisher who gave the first definition of Web 2.0 (see O'REILLY, in this Dossier). August 2005 was the beginning of the Web 2.0 wave and a lot of people wanted to attend the FooCamp. Because their entry was denied, a small group of friends in their thirties active in the IT sector decided to organise their own conference, open to everyone. In less than a week's time, 200 people attended the meeting - a spectator-free "unconference" dedicated to presentations of Web 2.0 applications and ideas for new services. Practically, the participants presented their name, their company or group and three tags giving an idea of their current preoccupations. Then, each person who wanted to present an idea or exchange about something entered their topic in a matrix table drawn on a big sheet of paper showing the rooms or meeting places and the time slots. After the end of the BarCamp people could move to a mashpit, which is a collaborative web application building process: the participants choose some ideas for applications and, working in groups, finalized a first version of those applications. During the BarCamp people shot photos and videos which would later be posted on Flickr, Youtube or Dailymotion. After the BarCamp, participants wrote reports or posted their presentations in blogs or wikis, thus expanding the visibility of the meeting: on February 20th 2007, the term BarCamp had 3,460,000 references in Google, 20,000 photos on Flickr, 110 videos on YouTube and 17,500 blogs or blog posts in Technorati. By 2006, the BarCamp had spread to many countries, particularly the rest of the USA, Canada, France, Germany, Australia and India.

The concepts of "spectator-free" and "unconference" didn't appear with the BarCamp, but they are contemporaneous and their emergence is in phase with several other attempts to organise "open" gatherings and public meetings. The term unconference was first used in the late 1990s for techies' meetings (XML developers) and became more popular when it was picked up by the blogger community in 2003 and 2004. The "Open Space Methodology" was theorised by Harrison Owen in 1987 (OWEN, 1997), but two more recent big annual gatherings have been more significant in spreading these new collaborative practises. At the world level, the WSF (World Social Forum) and its local and continental versions are the biggest events using this kind of bottom-up methodology. The forums – which are a gathering of those who reject neo-liberal globalisation - are able to attract up to 150,000 activists, as in Brazil in 2005 (AGUITON & CARDON, 2005). In the Nevada desert, another event, regularly attended by the San Francisco BarCamp core group, is organised each year in the same participatory way: "Burning Man" is an artistic gathering of almost 40,000 people, guided by ten principles; radical inclusion, gifting, decommodification, radical self-reliance, radical self-expression, communal effort, civic responsibility, leaving no trace, participation, and immediacy.

In the BarCamp, as well as in the WSF or Burning Man, there are technical organisers, but the content belongs to and comes from the participants, who build the events in a bottom-up self-organised process. BarCamp, as well as the WSF or Burning Man, is a contact-generating machine. Attending those events, participants don't know what they will discover, but they do know that there will be a chance to present their ideas or proposals, to learn from others, and to get new contacts or to refresh old ones. These are characteristics very similar to those we identified in the use of Web 2.0 applications and services in the first part of this paper.

Coworking is another concept emerging from the same circle of people as the BarCamp. While BarCamps are temporary spaces for contacts and encounters, coworking is an attempt to set up permanent places for the same purpose. In the coworking community blog, the definition is simple:

> "Coworking is a movement to create a community of cafe-like collaboration spaces for developers, writers and independents".

Coworking places are usually flats or houses rented by a small group of people and open to people who need a place for few hours or few days to work with others. The renter or the person most involved in the management or the location is known as the "anchor" and the temporary users pay a small

amount by day. The dream of most Coworking anchors is to open a cafe that could give easier access to a lot of people and simplify the relations between coworkers.

In several discussions with people in charge of coworking spaces, the concept of "third place" appeared clearly, very often mixed-up with a nostalgic reference to Mittel Europa and Vienna's Kaffehauskultur where writers and intellectuals were supposed to pass their days working and meeting their colleagues. The "third place" is something which is neither a desk in a company nor the domicile of the person: it is a kind of public place you can join when you want, with the guarantee of finding some social life and the chance of a useful exchange. Like the BarCamp, coworking is ideally setup for casual encounters, another tool in the box design to find the weak ties necessary for the weak cooperation indispensable to built Web 2.0 services and applications.

■ Conclusion

To conclude we would like to adopt a broader approach by looking at the hypothesis that the collaborative practices described in this paper are clues to the existence of a new social category, or even a new social class. The rise of flexible jobs, creative work and network organisation of production have been described positively in many recent works. *The rise of the Creative Class* (FLORIDA, 2002) aims to identify the conditions able to help cities attract the "Creative Class" – a mix of tolerance and a good education system. However he first has to define this class as: a "Super Creative Core" composed of people fully engaged in creative processes (analysts, developers, teachers, filmmakers, …), and "creative professionals", a wide range of knowledge-intensive industries such as high-tech, finance, health, etc. For Florida, 12% of the U.S. work-force is part of the creative core, and almost 30% are creative professionals. Quoting Mark Granovetter, Florida thinks there is a long-term trend moving from "strong ties communities" to "weak ties communities", a trend that is accelerating today with the rise of a creative class that needs weak ties to "mobilise more resources and more possibilities… and expose us to novel ideas that are the source of creativity."

As this paper tried to show, the social practices of the users and builders of Web 2.0 services and applications are based on weak cooperation, which requires the mobilisation of weak ties and expands the number of those ties.

In this way, we could say that the existence of Web 2.0 services is a small step towards the democratisation of the use of weak ties, traditionally limited to the ruling class and the elites. This small degree of democratisation arrives parallel to the growth of new forms of elective sociability (CORCUFF *et al.*, 2005) which, as Florida noticed, require more weak ties than the strong ties coherent with the compulsory solidarities from the past. Moreover, even if we believe that the notion of creative class is extremely confusing, we are nevertheless at a point where the generalisation of Social Media and Web 2.0 tools could make the resources of the weak ties much easier to access.

In a note for the Saint-Simon Foundation, written in 1999, Jean-Louis Beffa, Robert Boyer and Jean-Philippe Touffut, describe the existence, in France, of three main types of wage relations: the first is a neo-Fordist relationship based on the stability of employment, the second is very mobile, being the characteristic of professionals in innovative sectors. The third wage relation is also mobile, but not by choice, and applies to the case of low-skilled workers in the service sector. The mobility of well-paid employees in the innovative sector is not a new phenomenon. Bernard Gazier, another French economist researching "transitional markets", reached the same conclusion in his book *Tous Sublimes* with a reference to the "sublimes", a group of highly skilled workers during France's Second Empire who chose their boss and stopped working when they had enough money to enjoy life and social relationships! Today, the innovators of Web 2.0 that we met are in this wage relation, passing from company to company, with phases of non paid work when they create applications and ideas of services, for fun or for the community, but also with the feeling than one of these services could become a profitable business.

However, the notion of "creative class" could be extremely confusing. Firstly, it brings together social groups with very different lifestyles and socio-economic conditions. To describe a young person painting tags on the wall of her city and living on the minimum income and Bill Gates or a CEO of a successful software company as member of the same "Super Creative Core" does not make much sense. Secondly, the notion of "Creative class" tends to gloss over the hierarchies and inequalities inherent to this era of globalised capitalism. Saskia SASSEN, in her book (2001), described in the same way as Florida the related growth in the dominant cities, such as New York, London or Tokyo, of the well paid workers of the financial economy and the poor, precarious and generally immigrant workers in services such as restaurants, security and the maintenance of those cities. However, instead of describing the growth of a Creative Class in several cities only

according to their level of tolerance and the quality of their educational systems, Sassen draws the picture of hierarchical archipelagos where one two or three cities are at the centre of the worldwide flow of financial capital, giving them a dominant place in the world economy. We could hypothesize that the growth of digital cooperative uses associated with new Web 2.0 services could create the same kind of inequalities, on the basis that a network structure always creates some new form of exclusion (BOLTANSKI & CHIAPELLO, 1999).

The second point is to analyse some concrete impact of the generalisation of the social media and Web 2.0 applications on society. Many authors have developed the idea that the world is shifting from an industrial economy to an informational and immaterial economy with the rise of pervasive internet practices as a central component (AZAÏS *et al*., 2001; NEGRI & HART, 2000, 2004; LAZARATTO, 2004). This immaterial economy is based on a massive collaborative process of work, with a transformation of the value theory from a value based on the quantity of abstract working time, using a Marxist approach, to a value based on the production of commons. Those commons – named positive externalities by economists – escaped from the narrow frame of the wage relation in a process where life and production are increasingly mixed-up. While the Negri and Hardt analysis clearly illustrates the growth of the social character of the modern production of goods, services and knowledge, and the appearance of a new paradigm and the isomorphism between the shape of the new capitalism, its critics and the technical networks embedded in these evolutions, the risk is to end up with an overly-broad approach, thus complicating the evaluation of the turning points in this new era. It is useful to look at the concrete wage relations – with all their differences – instead of claiming that the immaterial economy is the result of almost all human inter-actions. In the same way, it will be useful to look concretely at the impact of the current wave of collaborative tools on the production process, as well as on social relations.

Bibliography

ALLARD Laurence & VANDENBERGHE Frédéric (2003): "Express Yourself! Les pages perso entre légitimation techno-politique de l'individualisme expressif et authenticité reflexive peer-to-peer", *Réseaux*, 117, 2003, pp. 191-219.

AZAÏS Christian, CORSANI Antonella & DIEUAIDE Patrick (Eds) (2001: *Vers un capitalisme cognitif. Entre mutations du travail et territoires*, Paris, L'Harmattan.

BENKLER Yochai (2006): *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, Boston, Yale University Press.

BOLTANSKI Luc & CHIAPELLO Eve (1999): *Le nouvel esprit du capitalisme*, Paris, Gallimard.

BOYD Danah (2004): "Friendster and Publicly Articulated Social Networking", Conference on Human Factors and Computing Systems (CHI 2004), Vienna, ACM, April.

BOYD Danah & HEER Jeffrey (2006): "Profiles as conversation: Networked Identity Performance on Friendster", Proceeding of the Hawaii International Conference on System Sciences (HICSS-39), IEEE Computer Society, January 4-7.

BRESNAHAM Timothy (2002): "La contribution des technologies de l'information à la croissance économique" in TOUFFUT J.P. (Ed.), *Institutions et Innovations*, Paris, Editions Albin Michel, pp. 287-325.

BRYANT S., FORTE A. & BRUCKMAN A. (2005): "Becoming Wikipedian: Transformation of Participation in a Collaborative Online Enciclopedia", in Proceedings of GROUP.

CORCUFF Philippe, ION Jacques & (de) SINGLY François (2005): *Politiques de l'individualisme. Entre sociologie et philosophie*, Paris, Textuel.

FLICHY Patrice:

- (2004): "L'individualisme connecté. Entre la technique numérique et la société", *Réseaux*, vol. 22, no. 124, pp. 17-51.
- (2001): *L'imaginaire d'Internet*, Paris, La découverte.

FLORIDA Richard (2002): *The Rise of the Creative Class*, New York, Basic Books.

GAZIER Bernard (2003): *Tous "Sublimes", Vers un nouveau plein emploi*, Paris, Flamarion.

GENSOLLEN Michel:

- (2003): "Biens informationnels et communautés mediatés", *Revue d'économie politique*, 113, pp. 9-40.
- (2006), "Des réseaux aux communautés : la transformation des marchés et des hierarchies", in PROULX Serge, PIOSSANT Louise & SENECAL Michel (Eds), *Communautés virtuelles. Penser et agir en réseau*, Laval, les presses de l'Université de Laval, pp. 107-129.

LAZARATTO Maurizio (2004): *Les révolutions du capitalisme*, Paris, Les empêcheurs de penser en rond/Seuil.

LENTO Thomas, WELSER Howard T., GU Lei & SMITH Marc (2006): "The Ties that Blog: Examining the Relationship Between Social Ties and Continued Participation in the Wallop Weblogging System", 3rd annual workshop on the Weblogging Ecosystem: aggregation, Analysis and Dynamics, Edimburgh, WWW06. http://www.blogpulse.com/www2006-workshop/papers/Lento-Welser-Gu-Smith-TiesThatBlog.pdf

MARLOW C., NAAMAN M., BOYD D. & DAVIS M. (2006): "Position paper, Tagging, Taxonomy, Flickr, Article, ToRead ?", paper for the Collaborative Web Tagging Workshop at WWW2006, Edinburgh, 22 May.
http://www.rawsugar.com/www2006/29.pdf

MISHNE Gilad & GLANCE Natalie (2006): "Leave a Reply: An analysis of Weblog Comments", 3rd annual workshop on the Weblogging Ecosystem: aggregation, Analysis and Dynamics, Edimburgh, WWW06 2006.
http://www.blogpulse.com/www2006-workshop/papers/wwe2006-discovery-lin-final.pdf

NARDI Bonnie A., SCHIANO Diane J. & GUMBRECHT Michelle (2004): "Blogging as Social Activity or 'Would You Let 900 Million People Read Your Diary?'", Proceedings of Computer-Supported Cooperative Work, Chicago, Illinois.

NEGRI Tony & HARDT Michael:
- (2000): *Empire*, Cambridge, Harvard University Press.
- (2004), *Multitudes, War and Democracy at the Age of Empire*, New York, Penguin Press.

OWEN Harrison (1997): *Open Space Technology: A User's Guide*, San Francisco, Berrett-Koehler Publishers Inc. 2nd edition.

RHEINGOLD Howard (1994): *Virtual Communities*, Secker & Warburg, London.

SASSEN Saskia (2001): *The Global City: New York London Tokyo*, Princeton: Princeton University Press, 1991. New ed., 2001.

(de) SINGLY François (2003): *Les uns avec les autres. Quand l'individualisme crée du lien*, Paris, Armand Colin.

VIEGAS Fernanda B., WATTENBERG Martin), KRISS Jesse & van HAM Franck (2007): "Talk before you type: Coordination in Wikipedia", in Proceedings of the 40th Hawaiian International Conference of Systems Sciences, Big Island, Hawaii, janvier.